



DEPARTMENT OF AGRICULTURE,  
CEYLON.

BULLETIN No. 36.

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**RUBBER-MANURING EXPERIMENTS:**  
**EXPERIMENT STATION, PERADENIYA,**  
**1915—1917.**

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**Peradeniya,**

**June, 1918.**

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RUBBER-MANURING EXPERIMENTS AT  
PERADENIYA.



THE results of these experiments to the end of 1914 were published in Bulletin No. 18, 1915. The experiments have been continued to date on the lines indicated, *i.e.*, a general mixture containing nitrogen, phosphoric acid, and potash, modified in the other plots to contain an excess of each ingredient and the gradual elimination of the non-essential. The plots are as follows :—

1. General Mixture : Plot 83 A and B ; 42 trees ; 29 trees tapped.
2. Excess Nitrogen : Plot 83 D and 84 A ; 46 trees ; 42 trees tapped.
3. Excess Phosphoric Acid : Plot 84 C and D ; 46 trees ; 34 trees tapped.
4. Unmanured : Plot 85 A and B ; 33 trees ; 25 trees tapped.
5. Excess Potash : Plot 85 D and 86 A ; 48 trees ; 35 trees tapped.
6. Mineral Mixture : Plot 86 B and C ; 47 trees ; 40 trees tapped.

The average girth of all the trees tapped was from 29·4 inches to 29·7 inches in January, 1914, when alternate day tapping was begun with one cut to the left on one-third at 26 inches.

Manure was applied in February, 1913, but none in 1914. From 1915 the manures have been applied annually in rows between the trees. The rows are dug 2 to 3 feet wide and 6 inches deep, all leaves swept in over the manure and forked in, the trench being then filled. Later manuring shows that

these trenches are full of rootlets, but with few below the 6 inches depth. The manures applied in 1916 and 1917 supplied the following amounts per acre of the chief ingredients :—

General Mixture Plot : N 50 lb. ;  $P_2O_5$  30 lb. ;  $K_2O$  30 lb.  
 Excess Nitrogen Plot : N 80 lb. ;  $P_2O_5$  9·5 lb.  
 Excess Phosphoric Acid : N 9·5 lb. ;  $P_2O_5$  80 lb.  
 Excess Potash : N 9·5 lb. ;  $K_2O$  80 lb.  
 Mineral Mixture : N 50 lb. ;  $P_2O_5$  30 lb. ;  $K_2O$  30 lb.

The dates of manuring were January, 1915 ; March, 1916 ; and June, 1917.

The control rows between the plots 1 to 5 were uprooted in October, 1916, as more air and root space was necessary.

*Tapping.*—The first area of one-third at 26 inches was tapped from January, 1914, to end of May, 1916, and lasted twenty-nine months, the average consumption being 0·89 inch per month. The second area was begun on June 1, 1916, at 20 inches, and to the end of 1917 14·6 inches of bark had been used, or an average of 0·77 inches per month.

No water was employed, and the daily yield of pure latex from each plot was recorded in cubic centimetres. This was manufactured into rubber, and the dry weight and scrap was recorded monthly in grams. The weight in grams is converted into ounces by multiplying by 0·035.

*Climate.*—The rainfall and number of wet days are fairly uniform year by year, but there was a severe drought in January and February, 1916, which caused rather heavier seeding. The drought was followed by more continuous wet weather in June and July, resulting in a considerable amount of diseased pods.

In 1917 there was no drought in the early part of the year, and the rainfall was fairly well distributed. Much less seed was formed, and there were only one or two instances of diseased pods.

Comparing the yields of latex in the *first quarters* of 1915, 1916, and 1917, respectively, the effect of the climate on crop is marked. 24·82 per cent. of the total crop was produced in 1915, when February and March were rather dry ; 19·66 per cent. in 1916, when there was a severe drought in January and

February, and 30·80 per cent. was produced in 1917, when January and February were unusually wet.

Table showing the monthly rainfall and number of wet days from 1914 to 1917, inclusive :—

	1914.		1915.		1916.		1917.	
	Inches.	Wet Days.	Inches.	Wet Days.	Inches.	Wet Days.	Inches.	Wet Days.
Jan.	2·20	8	9·40	14	·49	2	5·83	12
Feb.	0·33	3	4·17	3	—	—	6·12	13
March	4·56	10	1·85	6	10·64	13	6·49	17
April	5·87	11	5·57	9	6·10	9	2·15	6
May	4·83	10	2·76	8	7·30	10	4·63	3
June	12·47	27	9·10	13	13·67	20	10·24	14
July	5·17	17	12·84	20	12·53	26	6·40	13
August	5·71	11	5·10	13	4·69	16	9·95	15
Sept.	7·60	16	10·07	16	6·67	16	15·04	19
Oct.	11·87	25	5·88	10	6·77	19	9·63	13
Nov.	7·41	19	12·21	27	9·16	14	16·49	18
Dec.	14·70	21	8·64	14	4·04	10	6·49	13
Total	82·72	178	87·59	153	84·06	155	99·46	156

*Diseases.*—A considerable amount of bark rot and pod disease was apparent in 1916, but little in 1917, only one tree in the general manure plot showing black pods.

### Yields.

Table showing the yields of dry rubber per tree from the manured and unmanured plots in lb. and oz. from 1914 to 1917, inclusive :—

	1914.		1915.		1916.		1917.		Total.	
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
General Mixture..	2	4·4	3	0	3	13	4	5·4	13	6·8
Excess Nitrogen..	2	5·7	3	7·8	3	13·9	4	6·8	14	2·2
Excess Phosphoric Acid	2	7·2	3	9·2	4	3·9	4	9·4	14	13·7
Excess Potash	2	3·2	2	11·8	3	8·6	3	10·7	12	2·3
Mineral Mixture..	2	5·4	3	3·3	3	11·4	3	9·0	12	13·1
Unmanured	2	11·5	3	9·7	4	0·4	4	0·2	14	5·8

It will be noticed that, with the exception of the phosphoric acid plot, the total yield from the unmanured plot for the four years is the highest. During 1917, however, the unmanured plot and the mineral mixture plot show a decrease on the

previous year's yield, while all the others continue to show an increase, though only to a small extent in the case of the potash plot, which has been consistently poor from the beginning of the experiments. Comparing the yields of 1914 and 1917 in each plot, the increases are as follows :—

	Increased Yield.		Increase over	
	lb.	oz.	Unmanured Plot.	
General Mixture ..	2	1	..	12·3 oz. per tree
Excess Nitrogen ..	2	1·1	..	12·4 oz. per tree
Excess Phosphoric Acid ..	2	2·2	..	13·5 oz. per tree
Excess Potash ..	1	7·5	..	2·8 oz. per tree
Mineral Mixture ..	1	4·6	..	—0·1 oz. per tree
Unmanured ..	1	4·7	..	—

The general organic mixture, excess nitrogen, and phosphoric acid in this way show a marked increase over the unmanured plot. The increased yield per tree per annum in each plot is shown below, and the unmanured tends to show that without suitable manure rubber yields will not continue to improve after a certain stage.

Table showing the *increased* yield per tree in each succeeding year 1915 to 1917, inclusive :—

	1915.	1916.	1917.
	oz.	oz.	oz.
General Mixture ..	.. 11·6 ..	13·0 ..	8·4
Excess Nitrogen ..	.. 18·1 ..	6·1 ..	8·9
Excess Phosphoric Acid ..	.. 18·0 ..	10·7 ..	5·5
Excess Potash ..	.. 8·6 ..	12·8 ..	2·1
Mineral Mixture ..	.. 13·9 ..	8·1 ..	2·4
Unmanured ..	.. 12·2 ..	6·7 ..	0·2

Excess of nitrogen and phosphoric acid had an immediate effect in 1915 over the normal increase, due to age, girth, and the cutting out of the cocoa in September to November, 1912. In 1916 the increase from the second application of manure in 1915 was less marked, except in the plots with general mixture and excess of potash. The excess nitrogen plot showed a lower increase than the control plot. The lower increase in this year was due partly to the drought in January and February. In 1917 the general mixture, excess nitrogen, and phosphoric acid plots continued to show a further increase, and to a slight extent in the potash plot, while the mineral

mixture and unmanured plots show a decrease over 1916 yields. The annual cost of the manures applied are approximately as follows :—

General Mixture ..	Rs. 62 per acre
Excess Nitrogen ..	Rs. 67·83 per acre
Excess Phosphoric Acid ..	Rs. 25·50 per acre
Excess Potash ..	Rs. 26·18 per acre
Mineral Mixture ..	Rs. 50·60 per acre

As the trees are planted about 18 feet by 18 feet, or 134 trees per acre, and every third row has been cut out, the trees now number 90 per acre, and on this basis the value of the increase and the cost per acre can be compared, not allowing for the extra cost of manufacture.

Table showing the increase of dry rubber per acre in each year at 90 trees per acre :—

	1915.	1916.	1917.	Total.	Cost of Manuring, 3 Years.
	lb.	lb.	lb.	lb.	Rs. c.
General Mixture ..	65·25..	73·12..	47·12..	185·49..	186 0
Excess Nitrogen ..	101·81..	34·31..	50·06..	186·18..	203 49
Excess Phosphoric Acid ..	101·25..	60·19..	30·93..	192·37..	76 50
Excess Potash ..	48·38..	72·00..	11·81..	132·19..	78 54
Mineral Mixture ..	78·19..	45·56..	13·50..	110·25..	151 80
Unmanured ..	68·62..	37·69..	1·12..	105·19..	—

Taking 105·19 lb. of the unmanured plot as the total normal increase for the three years, and deducting it from the increases in the manured plots, the results are as follows :—

#### Nett Increase.

General Mixture ..	80·30 lb. at a cost of Rs. 186
Excess Nitrogen ..	80·99 lb. at a cost of Rs. 203·49
Excess Phosphoric Acid ..	87·18 lb. at a cost of Rs. 76·50
Excess Potash ..	27·00 lb. at a cost of Rs. 78·54
Mineral Mixture ..	5·06 lb. at a cost of Rs. 151·80

From these figures it would appear that the manure containing an excess of phosphoric acid was most profitable. This manure was of the following composition :—

	lb. per Acre.	
Groundnut cake ..	50	Containing—
Steamed bone dust ..	200	Nitrogen 9·5 lb.
Basic slag ..	200	Phosphoric Acid 80·0 lb.
	450	



The development of foliage and general vigour is, however, less marked in this plot than in any of the other plots.

Table showing the quarterly yields of latex, rubber, and scrap :—

In 1915.

Alternate day tapping one-third circumference one cut to left at 26 inches.

Plot 83, Rows A and B ; 29 Trees. General Mixture.				
	Latex. cc.	Rubber.	Scrap.	Per Cent. Scrap.
January-March ..	24,995 ..	8,609 ..	942 ..	34.4
April-June ..	24,530 ..	8,398 ..	829 ..	34.2
July-September ..	24,590 ..	8,337 ..	880 ..	33.9
October-December .	33,780 ..	10,856 ..	992 ..	32.1
	<u>107,905</u>	<u>36,200</u>	<u>3,643</u>	<u>33.8</u>

Plot 83, Row D, and 84, Row A ; 42 Trees. Excess Nitrogen.				
	Latex. cc.	Rubber.	Scrap.	Per Cent. Scrap.
January-March ..	49,190 ..	16,398 ..	965 ..	33.3
April-June ..	44,260 ..	15,197 ..	874 ..	34.3
July-September ..	39,890 ..	13,977 ..	800 ..	35.03
October-December .	53,530 ..	17,755 ..	1,004 ..	33.1
	<u>186,870</u>	<u>63,327</u>	<u>3,643</u>	<u>33.9</u>

Plot 84, Rows C and D ; 34 Trees. Excess Phosphoric Acid.				
	Latex. cc.	Rubber.	Scrap.	Per Cent. Scrap.
January-March ..	34,025 ..	11,735 ..	967 ..	34.4
April-June ..	38,880 ..	12,757 ..	992 ..	32.8
July-September ..	31,650 ..	10,934 ..	735 ..	34.5
October-December .	49,160 ..	16,533 ..	980 ..	33.6
	<u>153,715</u>	<u>51,959</u>	<u>3,674</u>	<u>33.8</u>

Plot 85, Rows A and B ; 26 Trees. Control.				
	Latex. cc.	Rubber.	Scrap.	Per Cent. Scrap.
January-March ..	26,390 ..	8,554 ..	1,025 ..	32.4
April-June ..	24,300 ..	8,166 ..	904 ..	33.6
July-September ..	28,050 ..	9,215 ..	705 ..	32.8
October-December .	37,740 ..	11,785 ..	881 ..	31.2
	<u>116,480</u>	<u>37,720</u>	<u>3,515</u>	<u>32.5</u>

## Plot 85, Row D, and 86, Row A ; 35 Trees.

		Excess of Potash.			
	Latex.	Rubber.	Scrap.	Per Cent.	
	cc.			Scrap.	
January-March ..	33,895	.. 11,145	.. 1,022	..	32·8
April-June ..	32,040	.. 10,094	.. 865	..	31·5
July-September ..	23,750	.. 7,290	.. 690	..	30·6
October-December .	38,620	.. 11,909	.. 841	..	30·8
	<u>128,305</u>	<u>40,438</u>	<u>3,418</u>		<u>31·4</u>

## Plot 86, Rows B and C ; 40 Trees.

		Mineral Mixture.			
	Latex.	Rubber.	Scrap.	Per Cent.	
	cc.			Scrap.	
January-March ..	47,015	.. 15,261	.. 1,091	..	32·4
April-June ..	40,960	.. 13,952	.. 1,004	..	34·0
July-September ..	34,710	.. 10,927	.. 799	..	31·4
October-December .	45,790	.. 14,508	.. 1,144	..	31·6
	<u>168,475</u>	<u>54,648</u>	<u>4,038</u>		<u>32·3</u>

## In 1916.

## Plot 83, Rows A and B ; 29 Trees.

		General Mixture.			
	Latex.	Rubber.	Scrap.	Per Cent.	
	cc.			Scrap.	
January-March ..	28,940	.. 10,894	.. 1,127	..	37·6
April-June ..	28,970	.. 9,408	.. 893	..	32·4
July-September ..	38,080	.. 11,785	.. 1,025	..	30·9
October-December .	49,600	.. 15,858	.. 1,229	..	31·9
	<u>145,590</u>	<u>47,945</u>	<u>4,275</u>		<u>32·9</u>

## Plot 83, Row D, and 84, Row A ; 42 Trees.

		Excess Nitrogen.			
	Latex.	Rubber.	Scrap.	Per Cent.	
	cc.			Scrap.	
January-March ..	45,300	.. 16,773	.. 1,181	..	37·02
April-June ..	45,300	.. 14,214	.. 1,079	..	31·3
July-September ..	57,040	.. 16,478	.. 1,029	..	28·8
October-December .	68,700	.. 22,118	.. 1,396	..	32·1
	<u>216,340</u>	<u>69,583</u>	<u>4,685</u>		<u>32·1</u>

## Plot 84, Rows C and D ; 34 Trees.

		Excess of Phosphoric Acid.			
	Latex.	Rubber.	Scrap.	Per Cent.	
	cc.			Scrap.	
January-March ..	35,950	.. 13,344	.. 1,261	..	37·1
April-June ..	39,150	.. 12,942	.. 1,077	..	33·05
July-September ..	51,230	.. 14,601	.. 1,208	..	28·5
October-December .	57,130	.. 20,165	.. 1,386	..	35·2
	<u>183,460</u>	<u>61,052</u>	<u>4,932</u>		<u>33·2</u>

## Plot 85, Rows A and B; 25 Trees.

## Control.

	Latex. cc.	Rubber.	Scrap.	Per Cent. Scrap.
January-March ..	26,210	9,335	1,131	35.6
April-June ..	29,200	9,271	932	31.7
July-September ..	36,320	9,324	1,029	25.6
October-December .	38,590	12,813	1,515	33.2
	130,320	40,743	4,607	31.2

## Plot 85, Row D, and 86, Row A; 35 Trees.

## Excess of Potash.

	Latex. cc.	Rubber.	Scrap.	Per Cent. Scrap.
January-March ..	30,940	10,651	1,210	34.4
April-June ..	36,880	11,075	1,060	30.02
July-September ..	47,840	13,172	1,000	27.5
October-December .	52,920	17,046	1,392	32.2
	168,580	51,944	4,662	30.8

## Plot 86, Rows B and C; 40 Trees.

## Mineral Mixture.

	Latex. cc.	Rubber.	Scrap.	Per Cent. Scrap.
January-March ..	39,110	14,121	1,392	36.1
April-June ..	43,510	13,265	1,362	30.4
July-September ..	54,460	15,400	1,514	28.2
October-December .	59,210	19,081	1,734	32.2
	196,290	61,867	6,002	31.5

## In 1917.

## Plot 83, Rows A and B; 29 Trees.

## General Mixture.

	Latex. cc.	Rubber.	Scrap.	Per Cent. Scrap.
January-March ..	46,010	14,987	1,409	32.5
April-June ..	30,900	11,600	1,105	37.6
July-September ..	27,880	10,366	911	37.2
October-December .	45,550	15,982	1,128	35.08
	150,340	52,935	4,553	35.6

## Plot 83, Row D, and 84, Row A; 42 Trees.

## Excess Nitrogen.

	Latex. cc.	Rubber.	Scrap.	Per Cent. Scrap.
January-March ..	68,400	23,437	1,685	34.2
April-June ..	47,210	16,666	1,137	35.3
July-September ..	43,620	17,314	1,215	39.6
October-December .	63,880	22,251	1,232	34.8
	223,110	79,668	5,269	35.9

( 9 )

Plot 84, Rows C and D; 34 Trees.

Excess Phosphoric Acid.

	Latex. cc.		Rubber.		Scrap.		Per Cent. Scrap.
January-March ..	47,990	..	17,468	..	1,787	..	36.3
April-June ..	37,560	..	13,593	..	1,200	..	36.1
July-September ..	36,980	..	14,957	..	1,071	..	40.4
October-December .	55,130	..	20,100	..	1,199	..	36.4
	<u>177,660</u>		<u>66,118</u>		<u>5,257</u>		<u>37.3</u>

Plot 85, Rows A and B; 25 Trees.

Control.

	Latex. cc.		Rubber.		Scrap.		Per Cent. Scrap.
January-March ..	38,870	..	12,537	..	1,646	..	32.2
April-June ..	24,080	..	8,682	..	1,246	..	36.05
July-September ..	24,790	..	7,860	..	916	..	31.7
October-December .	33,240	..	11,884	..	1,137	..	35.7
	<u>120,980</u>		<u>40,963</u>		<u>4,945</u>		<u>33.9</u>

Plot 85, Row D, and 86, Row A; 35 Trees.

Excess of Potash.

	Latex. cc.		Rubber.		Scrap.		Per Cent. Scrap.
January-March ..	49,680	..	16,145	..	1,872	..	32.4
April-June ..	33,390	..	12,855	..	1,296	..	38.4
July-September ..	30,410	..	10,166	..	928	..	33.4
October-December .	42,490	..	14,789	..	1,187	..	34.8
	<u>155,970</u>		<u>53,945</u>		<u>5,283</u>		<u>34.7</u>

Plot 86, Rows B and C; 40 Trees.

Mineral Mixture.

	Latex. cc.		Rubber.		Scrap.		Per Cent. Scrap.
January-March ..	54,220	..	17,869	..	1,716	..	32.9
April-June ..	33,980	..	12,804	..	1,355	..	37.6
July-September ..	34,450	..	11,754	..	957	..	34.1
October-December .	47,680	..	17,461	..	1,291	..	36.6
	<u>170,330</u>		<u>59,888</u>		<u>5,319</u>		<u>35.3</u>

## Increases in Girth.

Table showing the increase of girth from January, 1914, to January, 1918. All the trees were measured at 3 feet from the ground :—

Plots Manured.	1914. Inches.	1915. Inches.	1916. Inches.	1917. Inches.	1918. Inches.	Total Increase.	Average Increase.
<i>General Mixture</i> (29 Trees).							
Average	.. 29·47	.. 33·68	.. 37·06	.. 41·04	.. 43·72	.. —	.. —
Increase	.. —	.. 4·21	.. 3·38	.. 3·98	.. 2·68	.. 14·25	.. 3·56
<i>Excess Nitrogen</i> (42 Trees).							
Average	.. 29·88	.. 34·17	.. 37·46	.. 41·02	.. 43·90	.. —	.. —
Increase	.. —	.. 4·29	.. 3·29	.. 3·56	.. 2·88	.. 14·02	.. 3·50
<i>Excess Phosphoric Acid</i> (34 Trees).							
Average	.. 29·43	.. 33·49	.. 36·83	.. 40·48	.. 43·26	.. —	.. —
Increase	.. —	.. 4·06	.. 3·34	.. 3·65	.. 2·78	.. 13·83	.. 3·45
<i>Excess Potash</i> (35 Trees).							
Average	.. 29·29	.. 33·77	.. 37·20	.. 40·15	.. 41·62	.. —	.. —
Increase	.. —	.. 4·48	.. 3·43	.. 2·95	.. 1·47	.. 12·33	.. 3·08
<i>Mineral Mixture</i> (40 Trees).							
Average	.. 29·71	.. 34·46	.. 37·65	.. 42·31	.. 44·15	.. —	.. —
Increase	.. —	.. 4·75	.. 3·19	.. 4·66	.. 1·84	.. 14·44	.. 3·61
<i>Unmanured</i> (25 Trees).							
Average	.. 29·33	.. 34·09	.. 37·76	.. 42·58	.. 45·84	.. —	.. —
Increase	.. —	.. 4·76	.. 3·67	.. 4·82	.. 3·26	.. 16·51	.. 4·12

The control plot continues to show the greatest increase in girth in the fourth year, while the potash and mineral mixture show the least. The latter, however, comes next to the control plot for the four years period.

## Percentage of Caoutchouc in Latex.

Table showing the effect of different manurial ingredients on the percentage of Caoutchouc in the latex :—

	Per Cent. of Caoutchouc.				
	General Manure.	Excess Nitrogen.	Excess Phosphoric Acid.	Excess Potash.	Mineral Mixture.
1914	.. 34·7	.. 33·4	.. 32·7	.. 33·0	.. 33·01
1915	.. 33·8	.. 33·9	.. 33·8	.. 31·4	.. 32·3
1916	.. 32·9	.. 32·1	.. 33·2	.. 30·8	.. 31·5
1917	.. 35·6	.. 35·9	.. 37·3	.. 34·7	.. 35·3
Average for 4 years	34·25	33·8	34·2	32·5	33·02

**Evaporation of Rubber Latex.**

In order to test whether the calculation of rubber to latex would be affected to any extent by loss from evaporation in the field before coagulation, weighed samples were taken on several dull and bright days, and weighed hourly after full exposure to light and air. The average loss in 3 hours was only 1.23 per cent. on dull days, and 2.01 per cent. on bright days, which would allow a maximum error of 0.7 per cent. As all latex was treated in the same way, as soon as possible after tapping, the individual error is almost negligible.

**Manures Employed.**

The following mixtures have been employed in the experiments, the manures being applied in a trench dug between the rows :—

*General Manure.*

Plot 83 A and B; 42 Trees.

Supplying N 50 lb.,  $P_2O_5$  30 lb., Potash 30 lb.

lb		Per Acre.	
		lb.	
84	.. Groundnut cake ..	200	Containing—
84	.. Blood meal ..	200	Nitrogen, 50 lb.
57	.. Steamed bone meal ..	136	Phosphoric Acid, 30 lb.
31	.. Sulphate of potash ..	75	Potash, 30 lb.
26	.. Sulphate of ammonia .	60	
282		671	

Or 6.71 lb. per tree.

42 trees  $\times$  6.71 lb. = 282 lb. manure.

*Excess of Nitrogen.*

Plot 83 D, 84 A; 46 Trees.

Supplying 80 lb. Nitrogen.

lb.		Per Acre.	
		lb.	
84	.. Groundnut cake ..	182	Containing—
19	.. Steamed bone meal ..	43	Nitrogen, 80 lb.
138	.. Blood meal ..	300	Phosphoric Acid, 9.5 lb.
69	.. Sulphate of ammonia .	150	
310		675	

Or 6.75 lb. per tree.

46 trees  $\times$  6.75 lb. = 310 lb. per plot.

*Excess of Phosphoric Acid.*

Plot 84 C and D; 46 Trees.

Supplying 80 lb. Phosphoric Acid.

lb.		Per Acre.	
		lb.	
20	.. Groundnut cake ..	50	Containing—
78	.. Steamed bone dust ..	200	Nitrogen, 9·5 lb.
78	.. Basic slag ..	200	Phosphoric Acid, 80 lb.
<hr/> 176		<hr/> 450	

Or 4·5 lb. per tree containing 0·8 lb. phosphoric acid.  
 39 trees  $\times$  4·5 lb. = 176 lb. per plot.

*Excess of Potash*

Plot 85 D and 86 A; 48 Trees.

lb.		Per Acre.	
		lb.	
65	.. Groundnut cake ..	136	Containing—
96	.. Sulphate of potash ..	200	Nitrogen, 9·5 lb.
			K <sub>2</sub> O 80 lb.
<hr/> 161		<hr/> 336	

Or 3·36 lb. per tree containing 0·8 lb. potash.  
 48 trees  $\times$  3·36 lb. = 161 lb. per plot.

*Mineral Mixture.*

Plot 86 B and C; 47 Trees.

lb.		Per Acre.	
		lb.	
131	.. Nitrolim ..	278	Containing—
83	.. Basic slag ..	176	Nitrogen, 50 lb.
35	.. Sulphate of potash ..	75	P <sub>2</sub> O <sub>5</sub> 80 lb.
			K <sub>2</sub> O 30 lb.
<hr/> 249		<hr/> 529	

Or 5·29 lb. per tree.  
 47 trees  $\times$  5·29 lb. = 249 lb. per plot.

April 30, 1918.

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